

ABSTRACTSURGICAL SYSTEM

A system is disclosed for use by a surgeon during implantation in a patient of a tibial implant and of a femoral implant in the course of a knee replacement operation. It comprises a navigation computer whose memory is arranged to hold data relating to size and shape of at least one tibial implant and at least one femoral implant as well as data obtained during pre-operative scanning of the patient relating to the tibia and femur of the patient and also data relating to the three dimensional position and orientation of at least one bone selected from the patient's tibia and the patient's femur obtained during the course of the knee replacement operation. It also includes registration means for registering the three dimensional position and orientation of the patient's tibia and/or femur during the course of the knee replacement operation, as well as detector means connected to the computer and operatively coupled to the registration means for detecting the position and orientation of the at least one bone. The system further includes tensor means for applying tension to the ligaments of the patient's knee in flexion or in extension after resection of the patient's tibia. Moreover the computer is programmed to display on the computer's screen, *inter alia*, one or more images derived from data held in the memory of the computer and depicting the position and orientation, including the patient's tibia before or after resection and the patient's femur with the knee tensed by the tensor means in flexion or in extension, with or without potential planes of cut for resection of the patient's femur and/or with the tibial component and/or the femoral component as it will appear after implantation thereof.